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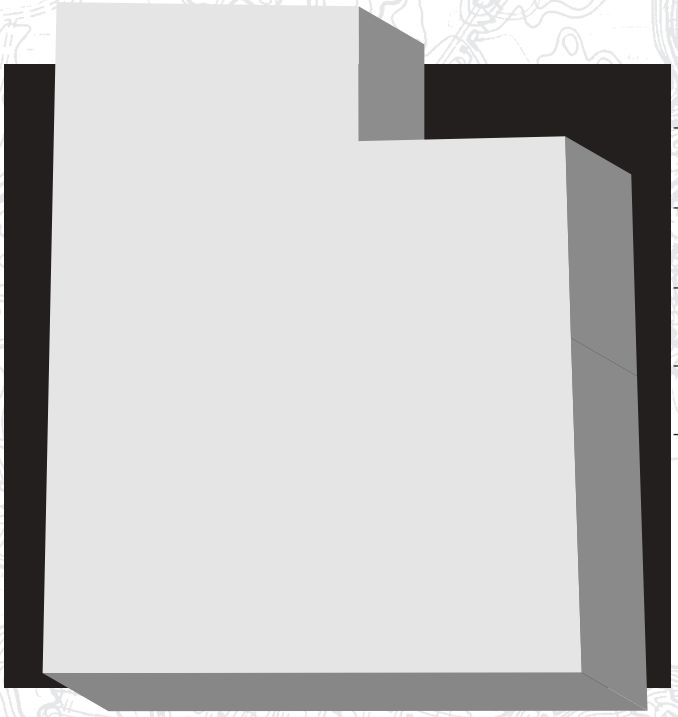
Utah State Primer



A Primer on Developing Utah's Landfill Gas Utilization Potential

LANDFILL METHANE OUTREACH PROGRAM

Printed on paper that contains at least 30 percent postconsumer fiber.

Contents

Introduction

1. The Goals of This Primer

Throughout the country, the number of landfill gas (LFG) utilization projects is growing. Recovering methane gas at solid waste landfills provides significant environmental and economic benefits by eliminating methane emissions while capturing the emissions' energy value. The methane captured from landfills can be transformed into a cost-effective fuel source for generating electricity and heat, firing boilers, or even powering vehicles.

Permits, incentive programs, and policies for LFG project development vary greatly from state to state. To guide LFG project developers through the state permitting process and to help them to take advantage of state incentive programs, the U.S. Environmental Protection Agency's (EPA's) Landfill Methane Outreach Program (LMOP) has worked with state agencies to develop individual primers for states participating in the State Ally Program. By presenting the latest information on federal and state regulations and incentives affecting LFG projects in this primer, the LMOP and Utah state officials hope to facilitate development of many of the landfills listed on page ii.

To develop this primer, the state of Utah identified all the permits and funding programs that could apply to LFG projects developed in Utah. It should be noted, however, that the regulations, agencies, and policies described are subject to change. Changes are likely to occur whenever a state legislature meets, or when the federal government proposes new directions for state and local governments. LFG project developers should verify and continuously monitor the status of laws and rules that might affect their plans or the operations of their projects.

Who Should Read This Primer?

This primer is designed to help facilitate landfill gas recovery in the state of Utah. It provides information for developers of LFG projects, as well as all other participants in such projects:

- Landfill operators
- Utility companies
- Independent power producers
- Utility regulators
- State regulators
- Engineers
- Equipment vendors
- Landfill owners
- Community officials

What Information Does This Primer Contain?

If you are interested in taking advantage of the economic and environmental opportunities in LFG recovery in Utah, you will need to know the regulatory requirements that apply. You will also need to know the economic incentives available to help make these projects more economically viable.

To address these needs, this primer covers the following topics:

- Federal Regulations and Permits. This section provides information on federal regulations that may pertain to LFG projects, including solid waste, air quality, and water quality regulations.
- State Regulations and Permits. This section provides information on state permits that apply to landfill gas recovery projects in Utah.
- Local Regulations and Permits. Local permit approval will often be needed for LFG projects.
- Federal Incentive Programs. This section presents information on federal incentives that may apply to LFG projects.

- State Incentive Programs. This section presents information about environmental infrastructure financing opportunities in the state of Utah.
- Electricity Restructuring. This section discusses how renewable energy provisions in state electricity restructuring regulations might apply to LFG projects.
- Voluntary Reporting of Greenhouse Gases. This section discusses a program allowing organizations to gain recognition for environmental achievements related to greenhouse gas emissions.

2. LFG Projects in Utah

While the State of Utah currently has no LFG projects, seven candidate landfills have been identified with potential to generate approximately 15 megawatts of power. The medium-sized candidate landfills (50,000–100,000 tons per year) include:

- Logan City Landfill
- Bountiful City Landfill
- Iron County Landfill
- Washington County Landfill

Three large landfills (greater than 100,000 tons per year) in the state also have been identified as candidate sites. These include:

- Salt Lake Valley Landfill
- Trans Jordan Landfill
- South Utah Valley Landfill

A LFG project feasibility study has been completed for the Salt Lake Valley Landfill. In addition, an end user and/or project partner has been identified. It is most likely that this will be the first operational LFG project in the state.

3. About the Landfill Methane Outreach Program

To promote the use of landfill gas as an energy source, EPA has established the Landfill Methane Outreach Program (LMOP). The goals of LMOP are to reduce methane emissions from landfills by:

- Encouraging environmentally and economically beneficial LFG project development
- Removing barriers to developing LFG projects

To achieve these goals, EPA establishes alliances with four key constituencies:

- State environmental and energy agencies
- Energy users/providers (including investor-owned, municipal and other public power utilities, cooperatives, direct end users, and power marketers)
- Industry (including developers, engineers, and equipment vendors)
- Community partners (municipal and small private landfill owners and operators; cities, counties, and other local governments; and community groups)

EPA establishes these alliances through a Memorandum of Understanding (MOU). By signing the MOU, each ally and partner acknowledges a shared commitment to promoting landfill gas energy recovery at solid waste landfills, recognizes that the widespread use of landfill gas as an energy resource will reduce methane and other air emissions, and commits to certain activities that enhance the development of this resource.

As of September 2000, more than 320 landfill methane recovery projects were operating in the United States. EPA estimates that up to 650 landfills across the United States could install economically viable landfill gas projects.

4. Where To Go For More Information

Utah Landfill Methane Task Force Members

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For more information about EPA's LMOP program, contact:

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Fax (202) 565-2077
http://www.epa.gov/lmop

Part 1: Regulations and Permits

1. Overview Of Federal Regulations And Permits

The following section discusses federal regulations that may pertain to LFG projects. LFG projects can be subject to solid waste, air quality, and water quality regulations. The federal regulations are presented in general terms, because individual state/local governments generally develop their own regulations for carrying out the federal mandates. Specific requirements may therefore differ among states. Project developers will have to contact relevant federal agencies and, in some cases, state agencies for more detailed information and applications. The discussion of each key federal regulation/permit contains three components:

- Importance of the regulation/permit to LFG project developers
- Applicability to LFG projects
- Description of each regulation/permit

1.1 Clean Air Act (CAA)

The CAA regulates emissions of pollutants to protect public health and the environment. The CAA contains three provisions that may affect LFG projects. The first two provisions, the New Source Performance Standards (NSPS)/Emission Guidelines (EG) and New Source Review (NSR) are currently in effect. The third provision, the Maximum Achievable Control Technology (MACT) standard, was recently proposed and may be finalized in late 2001.

Facilities planning to construct a new LFG system or those planning to modify a landfill operation to incorporate a LFG system must obtain a Construction and Operating Permit from the responsible air regulatory agency if emissions from the project exceed the major facility emission thresholds. The Construction and Operating Permit specifies the NSPS/EG and NSR requirements that the project must meet. The general requirements of the NSPS/EG, NSR, and Title V for LFG projects are discussed below.

New Source Performance Standards (NSPS) and Emissions Guidelines for MSW Landfills

Importance LFG projects can be part of a compliance strategy to meet EPA's emissions standards for landfill gas.

Applicability Landfills meeting certain design capacity, age and emissions criteria are required to collect LFG. Numerous control options to combust LFG are provided to landfill owner/operators including but not limited to LFG projects.

Description EPA final regulations under the CAA amendments require affected landfills to collect and control LFG. Specifically, landfills that are 2.5 million megagrams and 2.5 million cubic meters in size and have estimated emissions of nonmethane organic compounds (NMOC) of at least 50 megagrams per year must reduce their emissions of landfill gas. The regulations identify NMOC as a surrogate for landfill gas. Therefore, the emission reductions required in the rules are specified as reductions of NMOC.

Landfill gas emissions were targeted in these rules because of the potential negative impact on human health and the environment from the volatile organic compounds contained in the gas. In addition, the contribution of landfill gas to local smog formation, local odors, and potential explosives were included in the decision-making process. Finally, the potential for landfill fires was also factored into the decision.

For landfills that received waste after November 8, 1987 ("existing landfills"), the Emission Guidelines (40 CFR Part 60 Subpart Cc) apply. For landfills that commenced construction, reconstruction, or modification on or after May 30, 1991 ("new landfills") the New Source Performance Standards (40 CFR Part 60 Subpart WWW) apply. The collection and control requirements in each of these standards is the same; only the start of the compliance clock differs.

The final regulations can be found in the Federal Register, March 12, 1996, Vol. 61, No. 49, pages 9257-9262.

The basic requirements are the same for both existing and new landfills. Landfills that meet both of the following criteria must comply with the regulations.

- Capacity—maximum design capacity greater than or equal to 2.5 million Mg[1] (and 2.5 million cubic meters, about 2.75 million tons). If NMOC emissions are less than 50 Mg for a facility greater than 2.5 million Mg and 2.5 million cubic meters, reporting is required. If the annual emissions are 50 Mg or more for these landfills, collection and control of landfill gas are required.
- Emissions—annual NMOC emission rate is greater than 50 Mg (about 55 tons).

Air Emissions: New Source Review (NSR) Permitting Process

Importance New LFG projects may be required to obtain construction permits under New Source Review (NSR). Depending on the area in which the project is located, obtaining these permits may be the most critical aspect of project approval.

Applicability The combustion of LFG results in emissions of carbon monoxide, oxides of nitrogen and PM-10. Requirements vary for control of these emissions depending on local air quality. The relevant standards for a particular area will be discussed in Section 2, State Standards and Permits. Applicability of these standards to LFG projects will depend on the level of emissions resulting from the technology used in the project and the project's location (i.e., attainment or nonattainment area).

Description CAA regulations require new stationary sources and modifications to existing sources of certain air emissions to undergo NSR before they can operate. The purpose of these regulations is to ensure that sources meet the applicable air quality standards for the area in which they are located. Because these regulations are complex, a landfill owner or operator or the owner/operator of the LFG project may want to consult an attorney or expert familiar with NSR for more information about permit requirements in a particular area.

The existing CAA regulations for attainment and maintenance of ambient air quality standards regulate six criteria pollutants—ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), particulate matter (PM-10), sulfur dioxide (SO_2), and lead. The CAA authorizes the EPA to set both health and public welfare-based national ambient air quality standards (NAAQS) for each criteria pollutant. Areas that meet the NAAQS for a particular air pollutant are classified as being in "attainment" for that pollutant and those that do not are in "nonattainment." Because each state

[1] Landfills with less than 2.5 million Mg are required to file a design capacity report.

is required to develop an air quality implementation plan (called a State Implementation Plan or SIP) to attain and maintain compliance with the NAAQS in each Air Quality Control Region within the state, specific permit requirements will vary by state. However, the minimum requirements of the federal permitting regulations must still be met. (See 40 CFR 51.160-51.166 for more information.)

The location of the LFG project will dictate what kind of construction and operating permits are required. If the LFG project is located in an area that is in attainment for a particular pollutant, the LFG project must undergo Prevention of Significant Deterioration permitting for that pollutant (and possibly others). Nonattainment Area permitting is required for those LFG projects that are located in areas that do not meet the NAAQS for a particular air pollutant. Furthermore, the level of emissions from the project determines whether the project must undergo major NSR or minor NSR. The requirements of major NSR permitting are greater than those for minor NSR. The following provides more detail on new source permits.

Prevention of Significant Deterioration Permitting

Prevention of Significant Deterioration (PSD) review is used in attainment areas to determine whether a new or modified emissions source will cause significant deterioration of local air quality. The State air office can assist LFG project developers in determining whether a proposed project requires PSD approval.

All areas are governed to some extent by PSD regulations, because no location is in nonattainment for all criteria pollutants. At this time, applicants must determine PSD applicability for each individual pollutant based on its attainment/nonattainment status. For gas-fired sources, PSD major NSR is required if the new source will emit or has the potential to emit any criteria pollutant at a level greater than 250 tons per year (unless it is a listed source category).

If the source is considered major, the PSD major NSR permit process is required for the major pollutant (except for a nonattainment pollutant) and any other pollutant emitted in significant amounts. This process requires in part that applicants determine the maximum degree of reduction achievable through the application of available control strategies. Major sources generally must undergo the following PSD steps:

- Best Available Control Technology (BACT) analysis
- Monitoring of local air quality
- Source impact analysis/modeling
- Additional impact analysis/modeling (i.e., impact on vegetation, visibility and Class I areas)[2]

Minor sources (i.e., below 100/250 tons per year) are exempt from this process, but these sources may still be required to obtain a construction and operating air permit. See 40 CFR 52.21 for more information on PSD.

Nonattainment Air Permitting

A source locating in an area that has been designated nonattainment for one or more of the six criteria pollutants may be subject to the nonattainment NSR for such pollutants. Ozone is the most pervasive nonattainment pollutant, and the one most likely to affect LFG projects. A proposed new emissions source, or modification of an existing source located in a nonattainment area, must undergo nonattainment major NSR if the new source, or the modification is classified as major (i.e., if the new or modified source exceeds specified emissions thresholds, typically 100 tons per year, but lower in some cases for VOC/NO_x and PM-10). To obtain a nonattainment NSR permit for criteria pollutants, a project must meet several requirements:

[2] Class I areas are specified under the Clean Air Act and include national parks. Projects situated within a certain distance from Class I areas are subject to more stringent criteria for emissions levels.

- Use technology that achieves the Lowest Achievable Emissions Rate (LAER) for the nonattainment pollutant
- Arrange for an actual emissions reduction at an existing combustion source that offsets the emissions from the new project at specific ratios

Title V Operating Permit

Importance LFG projects will likely be part of a source that is required to obtain an operating permit under title V of the CAA. Regulations implementing this title can be found at 40 CFR parts 70 and 71.

Applicability A source becomes subject to title V permitting as a result of triggering one or more of the applicability criteria found in 40 CFR 70.3 or 71.3. For example, if a source is a major source under section 112, section 302, or part D of title I, then the source is required to obtain a title V permit. The 12-month deadline for submitting a timely and complete title V application is triggered by the criterion in 40 CFR 70.3 or 71.3 which first causes a source to become subject to title V.

Description Title V permits incorporate the requirements of the CAA which apply to a source and clarify how these requirements apply. In the process of applying for a title V permit, many sources have discovered that they are out of compliance with various applicable requirements. The regulations at 40 CFR parts 70 and 71 require sources to self-certify compliance with applicable requirements initially and annually and provide an opportunity for the public to comment on whether a source is complying with its applicable requirements. A permit requires a source to promptly report deviations from the permit and helps ensure ongoing emissions reductions at the source.

1.2 Resource Conservation and Recovery Act Subtitle D

Importance Before a LFG project can be developed, all Resource Conservation and Recovery Act (RCRA) Subtitle D requirements (i.e., requirements for non-hazardous waste management) must be satisfied.

Applicability Methane is explosive in certain concentrations and poses a hazard if it migrates beyond the landfill facility boundary. Landfill gas collection systems must meet RCRA Subtitle D standards for gas control.

Description In October 1979, federal regulations were promulgated under Subtitle D of RCRA, requiring controls on migration of landfill gas. In 1991, EPA promulgated landfill design and performance standards; the newer standards apply to municipal solid waste landfills that were active on or after October 9, 1993. Specifically, the standards require monitoring of LFG and establish performance standards for combustible gas migration control. Monitoring requirements must be met at landfills not only during their operation, but also for a period of 30 years after closure.

Landfills affected by RCRA Subtitle D are required to control gas by establishing a program to periodically check for methane emissions and prevent offsite migration. Landfill owners and operators must ensure that the concentration of methane gas does not exceed:

- 25 percent of the lower explosive limit for methane in facilities' structures, and
- The lower explosive limit for methane at the facility boundary.

Permitted limits on methane levels reflect the fact that methane is explosive within the range of 5 to 15 percent concentration in air. If methane emissions exceed permitted limits, corrective action (i.e., installation of a LFG collection system) must be taken. Subtitle D may provide an impetus for some landfills to install energy recovery projects in cases where a gas collection system is required for compliance. See 40 CFR Part 258 for more information.

1.3 National Pollutant Discharge Elimination System (NPDES) Permit

Importance LFG projects may need to obtain NPDES permits for discharging wastewater that is generated during the energy recovery process.

Applicability LFG condensate forms when water and other vapors condense out of the gas stream due to temperature and pressure changes within the collection system. This wastewater must be removed from the collection system. LFG projects may also generate wastewater from system maintenance and cooling tower blowdown.

Description NPDES permits regulate discharges of pollutants to surface waters. The authority to issue these permits is delegated to state governments by EPA. The permits, which typically last five years, limit the quantity and concentration of pollutants that may be discharged. To ensure compliance with the limits, permits require wastewater treatment or impose other operation conditions. The state water offices or EPA regional office can provide further information on these permits.

The permits are required for three categories of sources and can be issued as individual or general permits. LFG projects would be included in the "wastewater discharges to surface water from industrial facilities" category and would require an individual permit. An individual permit application for wastewater discharges typically requires this information.

- Water supply volumes
- Water utilization
- Wastewater flow
- Characteristics and disposal methods
- Planned improvements
- Storm water treatment
- Plant operation
- Materials and chemicals used
- Production
- Other relevant information

1.4 Clean Water Act, Section 401

Importance LFG projects may need CWA Section 401 certification for constructing pipelines that cross streams or wetlands.

Applicability LFG recovery collection pipes or distribution pipes from the landfill to a nearby gas user may cross streams or wetlands. If the construction or operation of such pipes causes any discharge of dredge into streams or wetlands, it may require Section 401 certification.

Description Any construction or operation of facilities that results in any discharge into streams or wetlands, is regulated under Section 401. This requirement may affect the construction of LFG project facilities or pipelines to transport LFG.

The applicant must obtain a water quality certification from the State in which the discharge will originate. The certification should then be sent to the U.S. Army Corps of Engineers. The certification indicates that such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act (CWA).

1.5 Other Federal Permit Programs

The following are brief descriptions of how other federal permits could apply to LFG project development.

- RCRA Subtitle C could apply to a LFG project if it produces hazardous waste. While some LFG projects can return condensate to the landfill, many dispose of it through the public sewage system after some form of on-site treatment. In some cases, the condensate may contain high enough concentrations of heavy metals and organic chemicals for it to be classified as a hazardous waste, thus triggering federal regulation.
- The Historic Preservation Act of 1966 or the Endangered Species Act could apply if power lines or gas pipelines associated with a project infringe upon an historic site or an area that provides habitat for endangered species.

2. State Regulations and Permits

This section provides information on permits required by the State of Utah for the development of a LFG project.[3] For an overview of required permits, contact information, and length of the review period, see Table 2.1. Tables 2.2 through 2.8 present more detailed information about the required permits. Information provided on each permit includes:

- How the permit is applicable to LFG projects
- The appropriate agency contact
- A description of the permit
- The statute/regulation
- Information required and suggestions for a successful application
- The application and review process
- The review/approval period.

[3] The permits contained in this handbook were suggested by state permitting agencies.

Table 2.1 Summary Table of State Regulations/Permits

Standard	Permit	Agency/Contact	Length of review period
Air	Title V Operating Permit	Division of Air Quality Richard Sprott (801) 536-4000	18 months
	Air Quality Approval Order	Division of Air Quality Richard Sprott (801) 536-4000	90 days
Landfills	Solid Waste Permit	Division of Solid and Hazardous Waste Ralph Bohn (801) 538-6170	60 days to 6 months
Water	Surface Water Discharge Permit	Division of Water Quality Gayle Smith (801) 538-6170	60 days to 6 months
	Construction Permit	Division of Water Quality Kiran Bhayani (801) 538-6080	60 days to 6 months
	Indirect Discharges to Municipal Sanitary Sewers	Division of Water Quality Gayle Smith (801) 538-6170	60 days to 6 months
	Storm Water Permit	Division of Water Quality Gayle Smith (801) 538-6170	60 days to 6 months

Table 2.2 Title V Operating Permits

Applicability to Landfill Gas Projects	Facilities defined as "major" with potential to emit 100 tons/year or more of any regulated pollutant, 10 tons/year or more of any single hazardous air pollutant (HAP), or 25 tons/year or more of any combination of HAPs. Operating permit required for facilities with landfill design capacity of 2.5 million megagrams or more regardless of "major" status as defined above. Facilities subject to Section 111 (New Source Performance Standards) and 112 (HAPs) of the Clean Air Act (CAA). (Those facilities not deemed "major" by the regulations listed above are not currently required to obtain Title V Operating Permits.) Facilities subject to Title IV of the CAA.
Agency Contact	Richard W. Sprott, Acting Director Utah Division of Air Quality 150 North 1950 West P.O. Box 144820 Salt Lake City, Utah 84114-4820 (801)536-4000
Description	Title V is a comprehensive operating permit program that specifies all federally enforceable air regulations applicable to a facility in one document.
Statute/Regulation	The Clean Air Act (42 USC §§ 7401 et seq.); 40 CFR Part 70. Utah Administrative Code R307-415
Information Required/Suggestions	Facilities subject to Part 70 must submit an application within one year of applicability to the Title V program that describes all sources of air pollution and quantifies emissions from those sources. The application must identify all applicable federally enforceable requirements to those sources as well.

Application Process	The facility submits an application developed by the Division of Air Quality. This application will contain the information necessary to describe all air pollution sources and quantify emissions from these sources.
Review Process	Within 60 days of receipt of a Title V application, a completeness review is made. After the application is deemed administratively complete, a technical review is performed. When a permit is drafted, it undergoes several reviews, including one by the facility. A public notice of the draft permit is then issued for a 30-day public comment period; if comments are received, the draft is either revised and re-noticed or a reply to the comments is issued and the permit goes to EPA for a 45-day comment period, after which these comments (if any) are addressed and the permit is finalized.
Review/Approval Period	All Title V operating permits must be issued within 18 months of receipt.
Fees	Collection of fees is necessary to fund the Title V Program. Operating permit fees are adjusted annually by the State Legislature as appropriate to sufficiently fund the Title V program. There are no application fees.

Table 2.3 Air Quality Approval Order

Applicability to Landfill Gas Projects	Facilities defined as "major" with potential to emit 100 tons/year or more of any regulated pollutant, 10 tons/year or more of any single hazardous air pollutant (HAP), or 25 tons/year or more of any combination of HAPs.. Operating permit required for facilities with landfill design capacity of 2.5 million megagrams or more regardless of "major" status as defined above. Facilities subject to Section 111 (New Source Performance Standards) and 112 (HAPs) of the Clean Air Act (CAA). (Those facilities not deemed "major" by the regulations listed above are not currently required to obtain Title V Operating Permits.) Facilities subject to Title IV of the CAA.
Agency Contact	Richard W. Sprott, Acting Director Utah Division of Air Quality 150 North 1950 West P.O. Box 144820 Salt Lake City, Utah 84114-4820 (801) 536-4000
Description	An Approval Order may be necessary for equipment that collects, handles, or treats landfill gas. Before any air pollution source is constructed, an Approval Order must be obtained from the Division of Air Quality.
Statute/Regulation	Utah Administrative Code R307-400 series
Information Required/Suggestions	A description of the landfill, the collection system, and control devices, if any. Quantification of LFG production rates and the accompanying air pollutant emission rates are necessary. A Notice of Intent (NOI) is prepared by the source for review. An air dispersion modeling analysis for the air pollutant emissions may also be necessary. A guide to preparing a NOI is available for download at http://www.deq.state.ut.us/eqair/permits/pmtforms.htm.
Application Process	The facility submits a NOI. The NOI will contain the information necessary to describe all landfill-oriented air pollution sources and quantify emissions from these sources. The NOI should also contain drawings and other supporting material as necessary.
Review Process	After the NOI is deemed administratively complete, a technical review is performed. A draft permit is issued for the applicant to review before it is published for public comment and finalized.
Review/Approval Period	The Approval Order must be issued within 90 days of the NOI being deemed administratively complete.
Fees	Application fees, review fees, and initial inspection fees are applicable.

Table 2.4 Solid Waste Permit

Applicability to Landfill Gas Projects	A permit is required to operate a solid waste disposal facility. Closure and post-closure plans are required as part of the permit. Closed landfills are required to continue to monitor the landfill for a 30 year post-closure care period under a post-closure care permit. As a requirement of the permit the facility must prevent offsite migration of landfill gas. Landfill gas collection systems and landfill gas recovery projects may be major permit modifications.
Agency Contact	Ralph Bohn, Manager Solid Waste Section Division of Solid and Hazardous Waste P.O. Box 144880 Salt Lake City, Utah 84114-4880 (801) 538-6170
Description	Devices installed for the control of landfill gas and methane would fall under the solid waste permit as they relate to cell design, operation, closure and post-closure care. Modification of the permit to add or change the approved operation and design requires approval of the Executive Secretary of the Solid and Hazardous Waste Control Board.
Statute/Regulation	The Executive Secretary of the Solid and Hazardous Waste Control Board has been authorized to issue permits for construction, operation and closure of landfills in Utah. See Solid and Hazardous Act Utah Code Annotated 19-6 and Utah Administrative Code R315-301 through 320.
Information Required/Suggestions	Any landfill that is constructing a gas collection system must submit the design drawings and other details of the system to the Executive Secretary for review and approval. Permits also require that funds for the closure and post-closure care of the landfill be maintained. Any landfill gas collection system will be included in the financial assurance costs. Design drawings and specifications of the landfill gas control and collection system along with cost estimates for construction, operation and maintenance should be submitted to the Executive Secretary for approval. Discussion of the project with the Division prior to submittal of the plans is recommended.
Application Process	Copies of the Solid Waste Permitting and Management Rules, Permit application documents, and other useful information can be found at the Solid Waste Section's web site at www.eq.state.ut.us/eqshw/sws.htm.
Review/Approval Period	60 days to 6 months

Table 2.5 Surface Water Discharge Permit

Applicability to Landfill Gas Projects	Discharging waste water to surface waters, including storm drains, requires a permit prior to beginning operations. Utah Pollutant Discharge Elimination System (UPDES) Permits are required for all industrial, municipal and federal facilities, except those on Indian lands.
Agency Contact	Gayle Smith, Ph.D., Manager Permits and Compliance Section Utah Division of Water Quality P.O. Box 144887 Salt Lake City Utah 84114-4887 (801) 538-6779
Description	This permit describes the discharge/effluent limitation, monitoring, and reporting requirements, compliance responsibilities, and general requirements including reopener provisions.
Statute/Regulation	The UPDES permitting program is authorized under Section 19–4–108 UCA and the permit requirements and procedures under Section 19–5–109 UCA.
Information Required/Suggestions	Information should include applicant and facility description, basic discharge description (including location, duration, receiving water body, quantity, treatment given, chemical and biological quality), scheduled improvements and their schedules.
Application Process	Contact the Division of Water Quality for information on permits needed and submit completed application forms. The Division issues a draft permit, seeks public comment in area newspapers, holds necessary public hearings and issues final permits.
Review Process	This process includes consultation/meeting with the applicant to discuss specifics of the "Draft Permit," public comment and review of at least 30 days, and consultation with EPA Region 8 permitting staff.
Review/Approval Period	60 days to 6 months
Fees	Range from $270 to $10,800, depending upon type, size and complexity of proposed facility.

Table 2.6 Construction Permit for Wastewater Treatment Facilities

Applicability to Landfill Gas Projects	Facilities treating wastewater may need construction permits unless they discharge into a municipal sanitary sewer system.
Agency Contact	Kiran Bhayani, P.E., Manager Design Evaluation Section Utah Division of Water Quality P.O. Box 144887 Salt Lake City Utah 84114-4887 (801) 538-6080
Description	A construction permit or an approval is required before construction of any wastewater treatment facility or land application of effluents or residuals.
Statute/Regulation	19–5 Utah Code annotated, and R317, Water Quality Rules, Utah Administrative Code. Refer specifically to R317–3.
Information Required/Suggestions	Conceptual proposal Design basis and calculations Construction plans Please refer to R317–3 for further details.
Application Process	Contact the Division of Water Quality for information on permits needed and submit completed application forms. The Division issues a draft permit, seeks public comment in area newspapers, holds necessary public hearings, and issues final permits. Public comments are required only for ground water and surface water permits. Generally, construction permits do not require a public notice/comment period.
Review Process	Typically completed in 30 days. However, complexities in the proposal may require more time.
Review/Approval Period	60 days to 6 months 30 days on an average
Fees	Range from $270 to $10,800, depending upon type, size, and complexity of proposed facility Plan review fee: $60/hour. Ground water, storm water, and surface water discharge permits may be different. Refer to Schedule of Fees.

Table 2.7 Indirect Discharges (to municipal sanitary sewers)

Applicability to Landfill Gas Projects	A state permit is needed to discharge into sewers if the municipality or sewer district does not have a state approved pre-treatment program or authority to issue its own permits. A permit from a local control authority, usually the publicly owned treatment works (POTW), is needed if the POTW has a state-approved pretreatment program.
Agency Contact	Gayle Smith, Ph.D., Manager Permits and Compliance Section Utah Division of Water Quality P.O. Box 144887 Salt Lake City Utah 84114-4887 (801) 538-6779
Description	Landfill leachate and landfill gas condensate from nonhazardous landfills has been determined by EPA not to require pretreatment before being discharged to a POTW. However, the discharge may be subject to local limits and permitting. Landfill leachate and landfill gas condensate derived from listed petroleum refining processed wastes (K169-172) that were disposed of before, but not after, February 5, 1999 are exempt from RCRA requirements provided the leachate and condensate is regulated under the Clean Water Act and not stored in surface impoundments after February 13, 2001.
Statute/Regulation	40 CFR Part 261 (February 11, 1999) UAC R317–8–8, various local ordinances and resolutions.
Information Required/Suggestions	Each POTW has unique wastewater treatment capabilities. Those with approved wastewater pretreatment programs. have developed local limits for pollutants to protect their treatment systems. All prospective non-domestic dischargers will need a permit from the receiving POTW before beginning to discharge.
Application Process	Contact the Division of Water Quality for information on permits needed and submit completed application forms. The Division issues a draft permit, seeks public comment in area newspapers, holds necessary public hearings, and issues final permits.
Review Process	Evaluation of application for completeness.
Review/Approval Period	60 days to 6 months
Fees	Range from $270 to $10,800, depending upon type, size, and complexity of proposed facility.

Table 2.8 Storm Water Permit

Applicability to Landfill Gas Projects	Discharge permits are required for most industries that discharge storm water runoff to surface waters such as lakes or streams. Storm water pollution prevention plans must be in place prior to application. All construction activities that disturb more than 5 acres (clearing, grading, and excavating) are required to obtain a UPDES Construction Stormwater Permit (mainly for sediment and erosion control)
Agency Contact	Gayle Smith, Ph.D., Manager Permits and Compliance Section Utah Division of Water Quality P.O. Box 144887 Salt Lake City Utah 84114-4887 (801) 538-6779
Description	Storm Water Discharge Permits require the installation of Best Management Practices (BMPs) to control the quality of the storm water discharges to waters of the state.
Statute/Regulation	Utah Administrative Code R317–8–3.8
Information Required/Suggestions	In most cases creation of a Storm Water Pollution Preventive Plan (SWP3) is required prior to submitting a Notice of Intent to Discharge (NOT) to the DIvision of Water Quality. Review of SWP3 plans are accomplished through onsite inspections.
Application Process	Contact the Division of Water Quality for information on permits needed and submit completed application forms. The Division issues a draft permit, seeks public comment in area newspapers, holds necessary public hearings, and issues final permits.
Review Process	Notice of Intent (NOT) forms are reviewed for completeness. Permit fees are required to be submitted with the NOT. Review for compliance with the permit is accomplished through onsite inspections.
Review/Approval Period	60 days to 6 months
Fees	Range from $270 to $10,800, depending upon type, size, and complexity of proposed facility. Industrial permits are $500 for 5 years of coverage (may be prorated).

3. Overview of Local Regulations and Permits

Within the framework of federal and state regulation, local governments will have some jurisdiction over LFG development in nearly all cases. Typically, local permits address issues that affect the surrounding community. These permits generally fall under the categories of construction, environment and health, land use and water quality/use. In addition to issuing their own permits, local governments are also responsible for administering some permits for federal and state regulations. For example, many local governments are responsible for ensuring compliance with federal air quality regulations. It should be noted, however, that some local standards and regulations are more strict than state or federal regulations.

Steps to Successful Local Permits Approval:

The following 7 steps will help LFG project developers successfully obtain local permits approval.

Step 1. Determine which local authorities have jurisdiction over the project site.

Step 2. If necessary, determine route for LFG pipes and contact easement officials to get easements/right of ways.

Step 3. Contact local, city and/or county planning and public works departments to obtain information about applicable permits and to discuss your plans. Meeting with agency staff to discuss the LFG project and required permits often helps to expedite the permitting process.

Step 4. Obtain essential information regarding each permit, including:

- What information is required,
- The permitting process that should be followed, and
- Time frames (including submittal, hearing, and decision dates).

Step 5. Obtain copies of the regulations to compare and verify what is required in the permit applications. If they differ, contact the appropriate permitting agency.

Step 6. Submit a complete application. Incomplete applications typically result in processing delays.

Step 7. Attend meetings or hearing(s) where the application will be discussed to respond to any questions that are raised. Failure to do so could result in delays.

Typical Local Permits

Table 3.1 lists typical local permits and approvals required for LFG projects. Table 3.2 lists local health departments in the state.

Table 3.1 Local Regulations and Permits

Permit	Description
Building Permit	Most county/local governments require building permits for construction, which require compliance with several types of building codes, such as plumbing and electrical. A typical building permit application may require detailed final plans for structures, including electrical and plumbing plans, floor layout, sewage facilities, storm water drainage plan, size and shape of lot and buildings, setback of buildings from property lines and drain field, access, size and shape of foundation walls, air vents, window access, and heating or cooling plants (if included in the design).
Zoning/Land Use	Most communities have a zoning and land use plan that identifies where different types of development are allowed (i.e., residential, commercial, and industrial). The local zoning board determines whether a particular project meets local land use criteria and can grant variances if conditions warrant. A landfill gas project may require an industrial zoning classification.
Storm Water Management	Some local public works departments require a permit for discharges during construction and operation of a LFG project. Good facility design that maintains the pre-development runoff characteristics of the site will typically enable the project to meet permitting requirements easily.
Solid Waste Disposal	A LFG project may generate solid wastes, such as packaging material, cleaning solvents, and equipment fluids. If the landfill is closed, disposal of these solid wastes may be subject to review by a local authority. Costs of disposal should also be considered.
Wastewater	The primary types of wastewater likely to be generated by a LFG project include maintenance wastewater and cooling tower blowdown. The city engineer's office should be contacted to provide information about available wastewater handling capacity and any unique condensate treatment requirements or permits for landfills.
Fire Hazards and Precautions	The mix of gases in landfill gas has a moderate to high explosion potential; methane is explosive in concentrations of 5 to 15 percent in air. Because methane has the potential to migrate from the landfill to onsite or offsite structures, it poses a significant public safety hazard. EPA requires that methane concentrations be less than 5 percent at a landfill property line, and less than 2.5 percent of the lower explosive limit (LEL) in a facility's structures. County regulations may call for even stricter standards to be observed at the landfill. Local fire departments often require material safety data sheets for landfill gas.
Noise	Most local zoning ordinances stipulate the maximum allowable decibel levels from noise sources. These levels vary depending on the location of the site. For example, LFG recovery projects located near residential areas will likely have to comply with stricter noise level standards than projects located in non-populated areas.

Table 3.2 Local Health Departments

Bear River District Health Department
655 East 1300 North
Logan, Utah 84321
Phone: (435) 752-3730
FAX (435) 750-0396

Central Utah Public Health Department
70 West View Drive
Richfield, Utah 84701
Phone: 435/896-5451
FAX (435) 896-4353

Davis County Health Department
Courthouse Room 24
28 East State Street, POB 618
Farmington, Utah 84025-0618
Phone: (801) 451-3296
FAX (801) 451-3122

Salt Lake Valley County Health Department
1954 East Fort Union Blvd., Suite #100
Salt Lake City, Utah 82121
Phone: (801) 944-6600
FAX (801) 944-6608

Southeastern Utah District Health Department
28 South 1st East, POB 800
Price, Utah 84501
Phone (435) 637-3671
FAX (435) 637-1933

Southwest Utah Public Health Department
88 East Fiddlers Canyon Road, Suite H
Cedar City, Utah 84720
Phone: (435) 586-2437
FAX (435) 586-4851

Summit County Public Health Department
85 North 50 East, POB 128
Coalville, Utah 84017
Phone: (435) 336-4451 Ext 222
FAX (435) 336-4219

Tooele County Health Department
151 North Main Street
Tooele, Utah 84074
Phone: (435) 843-2340
FAX (435) 843-2304

TriCounty Health Department
147 East Main Street
Vernal, Utah 84078
Phone: (435) 781-5473
FAX (435) 781-5319

Utah County Health Department
589 South State Street
Provo, Utah 84606
Phone: (801) 370-8771
FAX (801) 370-8709

Wasatch City/County Health Department
805 West 100 South, POB 246
Heber City, Utah 84032
Phone: (435) 654-2700
FAX (435) 654-2705

Weber/Morgan District Health Department
2570 Grant Avenue
Ogden, Utah 84401
Phone: (801) 399-8433
FAX (801) 399-8306

Part 2: Incentive Programs

1. Overview of Federal Incentive Programs

There are three federal incentive programs that may apply to LFG projects: the Section 29 Tax Credit, the Renewable Energy Production Incentive (REPI), and the Qualifying Facilities (QF) Certification. Each program is described below.

1.1 Renewable Energy Production Incentive (REPI)

The Renewable Energy Production Incentive (REPI), mandated under the Energy Policy Act of 1992, may provide a cash subsidy of up to 1.5 cents per kilowatt hour to owners and operators of qualified renewable energy sources, such as landfills, that began operation between October 1993 and September 2003.[4] Private sector entities may qualify to earn tax incentives based on a tier system. Tier 1 facilities (solar, wind, geothermal, or closed loop biomass) receive full payments or pro rata payments if funds are too minimal to match all requests. Any remaining funds fall to Tier 2 which includes landfill gas facilities. If there are insufficient funds to cover Tier 2 applicants, a pro-rata system is implemented. The Department of Energy (DOE) will make incentive payments for 10 fiscal years, beginning with the fiscal year in which application for payment for electricity generated by the facility is first made and the facility is determined by DOE to be eligible for receipt of an incentive payment. The period for payment under this program ends in fiscal year 2013. REPI payments are subject to adjustment because they are appropriated by Congress each year.

For further information, contact:

U.S. Department of Energy
National Renewable Energy Laboratory
Golden Field Office
Golden, Colorado 80403
(303) 275-4795
http://www.eren.doe.gov/power/repi.html

U.S. Department of Energy
Efficiency and Renewable Energy
Forrestal Building, Mail Station EE-10
1000 Independence Avenue, S.W.
Washington, DC 20585
Phone: (202) 586-2206

1.2 Qualifying Facilities Certification

LFG projects that generate electricity will benefit from Qualifying Facilities (QF) certification, which is granted through the Federal Energy Regulatory Commission (FERC). The following describes the benefits of QF status and the steps for applying for such status.

The Public Utility Regulatory Policies Act (PURPA) — one of five parts of the National Energy Act of 1978 — was designed to promote conservation of energy and energy security by removing barriers to the development of cogeneration facilities and facilities that employ waste or renewable fuels. Such facilities are called Qualifying Facilities, or QFs. Under PURPA, utilities are required to purchase electricity from QFs at each utility's avoided cost of generating power. PURPA provides that a small power production facility, such as a LFG project that meets FERC standards, can become a QF.

In order to apply for QF status, applicants must prepare either (1) a Notice of Self-Certification, which asserts compliance with the FERC's technical and ownership criteria, or (2) an Application for Commission Certification of Qualifying Status, which requires a draft Federal Register notice and which provides actual FERC approval of QF status. In either case, the applicant must also file Form 565, which is a list of questions about the project, and must pay any filing fees associated with certifications, exemptions, and other activities. FERC will

[4] Final Rule Making, 10 Federal Register Part 451, July 19, 1995, Vol. 60, No. 138.

provide the QF "Info Packet" that describes the necessary steps, requirements, and background information. After submittal of the initial application, further justifications and submittal of information may be required.

For the QF Info Packet and applications, contact:

Federal Energy Regulatory Commission
Qualifying Facilities Division
825 North Capitol Street, N.E.
Washington, DC 20426
Phone: (202) 208-0577
http://www.ferc.fed.us

1.3 Section 29 Tax Credit

Developers of LFGTE projects who sell LFG to an unrelated third party may qualify for a tax credit under Section 29 of the Internal Revenue Service (IRS) tax code. In order to take advantage of the credits, project developers may bring in an outside party when developing power projects. The Section 29 tax credit was established in 1979 to encourage development of unconventional gas resources, such as landfill gas. Section 29 tax credits are available through 2007 to LFG projects that have a contract in place by December 31, 1996 and are placed in service by June 30, 1998. The credit has been extended several times by the U.S. Congress, but there is no guarantee that these extensions will continue. The credit is worth $3.00 per barrel of oil-equivalent (on a MMBtu basis) and is adjusted annually for inflation; currently, it is worth $0.979 per MMBtu – about 1.2 ¢/kWh for a typical landfill gas electricity project.

2. State Incentive Programs

The State of Utah does not currently provide tax incentives for LFG projects. However, as a State Ally in the Landfill Methane Outreach Program, Utah will continue to evaluate the creation of further incentives within the state for this purpose.

3. Electricity Restructuring and LFG

What Is Electricity Restructuring?

Electricity restructuring refers to the introduction of competition into both the wholesale and retail electricity markets. Until recently, electric utilities operated as monopolies authorized by federal and state regulatory authorities as the sole provider of electric service to consumers within a specific service territory. Under restructuring, utilities will lose these monopolies, enabling other energy providers to compete for their customers. The result may be more energy options for consumers, lower energy prices, and greater use of renewable energy sources.

Efforts to restructure the electric utility industry began in 1978 with passage of the Public Utilities Regulatory Policies Act (PURPA), which required utilities to buy a portion of their power from unregulated power generators in an effort to encourage the development of smaller generating facilities, new technologies, and renewable energy sources. The National Energy Policy Act of 1992 (EPACT) expanded on PURPA, allowing more types of unregulated companies to generate and sell electricity, effectively creating a competitive wholesale market for electric power.

Restructuring at the retail level has been a hot issue in many states since the passage of EPACT, which delegated states the authority to introduce competition among electric utilities within their borders. As of January 2001, 24 states have enacted some form of restructuring legislation, while the remaining 26 are considering such legislation. Utah's Electrical Deregulation and Customer Choice Task Force is preparing legislation to implement an electrical restructuring plan.

How Do These Changes Affect Landfill Gas Recovery?

Many states are including renewable energy provisions in their restructuring legislation. Such provisions mandate utilities to include a certain percentage of electricity generated from renewable, or "green energy," sources into their energy mixes. LFG is one such green energy source.

In March 1998, the Clinton Administration unveiled its "Comprehensive Electricity Competition Plan" to restructure the electricity industry nationwide. Contained in that proposal is a Renewable Portfolio Standard (RPS) that would guarantee that a minimum percentage of the nation's electricity be powered by green energy. Energy service providers would be required to cover a percentage of their electricity sales with generation from non-hydroelectric renewable sources such as wind, solar, geothermal, and biomass (which includes LFG).

Marketing Landfill Gas Recovery as Green Power

One of the emerging areas and most promising mechanisms to encourage utilities and other energy marketers to participate in LFG projects is the development of green marketing programs. Green marketing programs are designed to enable energy marketers to position renewable energy products (including LFG) as premium products, and therefore, collect a premium price from their customers. In addition, green marketing allows energy marketers in competitive marketplaces to differentiate their energy product, and allows utilities in non-restructured marketplaces to gain critical product marketing experience in preparation for competition. However, the general public is less familiar with LFG than other sources of renewable energy; support from the LMOP can help ensure the success of early LFG green marketing efforts.

Get the Latest Information on Electricity Restructuring in Your State

For up-to-date information on electricity restructuring in Utah, visit the National Conference of State Legislatures Web site at: http://www.ncsl.org/programs/esnr/restru.htm. This site contains a glossary of terms related to restructuring, as well as links to the full text of restructuring legislation passed by states.

4. Voluntary Reporting of Greenhouse Gases Program

The Voluntary Reporting of Greenhouse Gases Program, created by Congress under Section 1605(b) of the Energy Policy Act of 1992, provides an opportunity for any company, organization, or individual to establish a public record of their greenhouse gas emissions, reductions, or sequestration achievements in a national database. The data submitted to the program is made publicly available via CD-ROM and the Internet. Those who report to 1605(b) can gain recognition for environmental stewardship, demonstrate support for voluntary approached to achieving environmental policy goals, support information exchange, and inform the public debate about greenhouse gas emissions.

Additional information about the program, as well as reporting forms and technical assistance, are available through Energy Information Administration's (EIA's) Communications Center (202-586-0688, toll free at 800-803-5182, or via e-mail at infoghg@eia.doe.gov) and on the program's Web site at http://www.eia.doe.gov/oiaf/1605/frntvrgg.html.

Printed on paper containing at least
30% postconsumer recovered fiber.